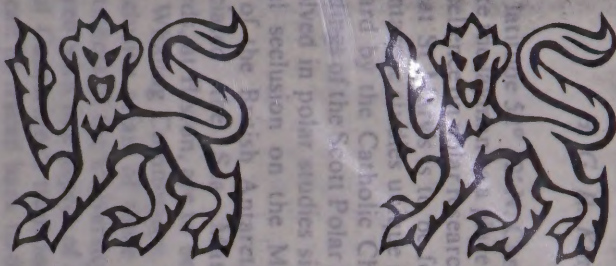


CAMBRIDGE



POLAR STUDIES IN CAMBRIDGE

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POLAR STUDIES IN CAMBRIDGE

H. G. R. King

Situated in latitude 52° 12' N. Cambridge does not, on the face of it, strike the layman as a place designated by nature for a centre of excellence on polar research. Yet within a three mile radius of Great St Mary's is to be found a concentration of Arctic and Antarctic studies unique in these islands, if not in the world. Hard by the Catholic Church in Lensfield Road stand the buildings of the Scott Polar Research Institute which has been involved in polar studies since 1920. Further to the west, in rural seclusion on the Madingley Road, lie the headquarters of the British Antarctic Survey with which is closely associated the Sea Mammal Research Unit. Northwestwards, at Histon, are to be found the offices of the International Whaling Commission. Polar research is by no means the exclusive affair of these specialized institutions; various departments of the University have from time to time become involved with one aspect of it or another.

The roots of Cambridge's traditional association with the polar regions can be traced back to the ill-fated expedition of Captain Robert Falcon Scott of 1910-13 when two of his young geologists, Raymond Priestley and Frank Debenham, seeking information from a previous expedition in connexion with a geological survey, and frustrated in their efforts to find it, debated the need for some kind of centre where the results of polar expeditions could be housed and catalogued to the advantage of future explorers. The idea was subsequently put down in writing by Debenham during the height of an Antarctic blizzard in 1912. After the First World War both Debenham and Priestley found themselves together at Cambridge, the former as lecturer in cartography, the latter as

a student of agriculture. The plans made for a polar centre in 1912 were dusted down and a start made in the attic of the Sedgwick Museum in 1920. With the support of Priestley and of James (later Sir James) Wordie, geologist with Sir Ernest Shackleton on the *Endurance* expedition of 1914-17, Debenham was able to persuade the trustees of the Scott Memorial Fund, established in 1912 to assist the dependants of Scott and those who died with him on the return from the South Pole, to hand over the balance of £12,000 to the University of Cambridge in trust for the establishment and endowment of the Scott Polar Research Institute. A condition of this transfer, which took place in 1926, was that a memorial building should be erected within ten years. An additional gift of £4,000 from the Pilgrim Trust was sufficient to guarantee the necessary funds and in November 1934 the new premises in Lensfield Road were officially opened by Mr Stanley Baldwin, Prime Minister of the day and Chancellor of the University. In his formal address Mr Baldwin referred to the Elizabethan spirit of adventure within British youth as being not only not dead but rampant. He could be excused the seeming hyperbole as this was indeed a golden age of amateur exploring by the two senior universities. The auspices for the new institute seemed excellent and it continued to develop along the lines laid down by its founders, building up a collection of books and manuscripts, adding to its museum of relics and equipment and providing accommodation for the writing up of research. Links with polar scientists and institutions throughout the world were likewise being forged by Debenham, as part-time director, and by his small but enthusiastic staff, and a journal of polar science and field notes, *Polar Record*, was initiated, the first of its kind. Shortage of funds was the only brake on progress. This situation changed dramatically with the outbreak of the Second World War when the building was taken over by the Intelligence Division of the Admiralty, and the Institute's library and archive resources harnessed to the compilation of polar handbooks and the general provision of information for the war effort. The acknowledgment by the government that a

centre of cold climate information was an essential element in defence strategy was responsible for the Institute's receipt of a Treasury grant-in-aid after the war. This, added to other outside grants from various Commonwealth governments, led to a growing professionalism in the post-war years and to the appointment of a nucleus of full-time research staff. In 1957 the Institute was absorbed into the University of Cambridge as a sub-department within the Department of Geography, with a full-time director supported by an advisory committee composed of representatives from various key Government bodies the University and the Learned Societies. For a time scientific research was seriously impeded by a lack of laboratory and other facilities until a substantial grant from the Ford Foundation enabled a major extension to be added to the original building in the 1960's, more than doubling its size and equipping it with the laboratory and cold rooms essential to modern polar research. During the past ten years the Institute has come to play a significant role in polar studies at an international level and its recently acquired status of a full-blown department within the University reflects the esteem in which it is now held. With a polar library and information service that is unrivalled the Scott Polar Research Institute is uniquely placed not only to pursue research but also to carry out a wide range of teaching functions both at undergraduate and post-graduate level. Students from as far distant places as Alaska and Australia have in recent years been attending the Institute's one-year course of broad-based polar studies leading to a diploma (now an M.Phil.).

Cooperation with other polar organizations was an essential element in Frank Debenham's original plans for a polar institute, and no better example of this can be found than the close links that have existed between the Scott Polar Research Institute and the British Antarctic Survey. The Survey began life as 'Operation Tabarin', a war-time naval operation launched in 1943 to establish permanent bases in the South Orkney and the South Shetland Islands in order to forestall possible occupation by the Germans. The following year scientific stations were established, and in 1945 the operation

was transferred to the Colonial Office under the name of the Falkland Islands Dependencies Survey. With the expansion of scientific interest in Antarctica after the International Geophysical Year of 1957-58, it became necessary to expand the Survey's scientific effort, and this was achieved by the setting up of research units in appropriate university departments. The first of these, for the geological sciences, was established in 1956 at the University of Birmingham of the Survey's acting director Raymond (by now Sir Raymond) Priestley, Debenham's old friend and colleague and for 14 years Vice-Chancellor of that university. In 1962 the Antarctic part of the Falkland Islands Dependencies was re-designated British Antarctic Territory and the name of the Survey changed to the British Antarctic Survey. By now its scientific programme had grown to the point where it was covering all major areas of environmental research, and it was a logical development that it should be granted more permanent status and incorporated into the Natural Environment Research Council in 1967. The next obvious step was the consolidation of the Survey's scattered units, and Cambridge, with all the symbiotic advantages of proximity to the Scott Polar Research Institute, seemed the obvious place. In May 1976 the new buildings on the Madingley Road were officially opened by H.R.H. the Duke of Edinburgh. The presence of these two major polar research establishments in Cambridge has proved to be mutually beneficial in every way. The Institute's unique library resources have been in constant use by scientists from the Survey while staff from the Survey have contributed extensively to the Institute's Diploma course in polar studies.

So it is that scientific research on the polar regions has evolved in Cambridge gradually over many years nurtured by a handful of polar veterans, all closely associated with the University. But what is the nature of this research on these distant and little known regions and what is its significance to the man in the street, who when all this is said and done, is asked to foot the bill?

The United Kingdom has been interested in Antarctic science since the days when Captain James Cook first

predicted the existence of Antarctica on his famous circumnavigation in southern high latitudes of 1772-75. Today Antarctica, a lofty ice-covered continent of some 5½ million square miles in area, and centred approximately on the South Pole, makes a unique open-air laboratory for the study of world weather systems and climate, the nature of the aurora, the causes of ice ages, the drifting of continents and the study of polar ice sheets. The British Antarctic Survey supports an Atmospheric Sciences Division and an Earth Sciences Division whose job it is to carry out continuous studies on these and other problems. Perhaps of more immediate interest to the general public are the rich resources of Antarctica's surrounding Southern Ocean which, despite the ice which largely covers it, is immensely rich in plankton - tiny animal and plant life which form the principle food of whales and certain seals and birds. With the diminution of whales, due to overfishing, there is in plankton a potential source of protein for the feeding of the world's ever growing population. The complex business of determining the proper balance between what man may properly extract from the Antarctic seas without upsetting the delicate balance of nature is of immediate concern to the Survey's Life Science Division.

While the British Antarctic Survey employs in the region of 150 scientific staff and auxiliaries on maintaining its investigations in the far south, research at the Scott Polar Research Institute is carried out on a comparatively small scale and largely reflects the specialist interest of its senior members. It tends, as befits a university context, to be timely and logistic field support. Typical of this type of originating research are the radio-echo studies carried out under the general direction of the Director, Dr Gordon Robin, over the past 15 years, using a special radar sounder, developed in stages at the Institute, for sounding the properties of the polar ice sheets, such as those of Antarctica and Greenland, including their depth, structure and the nature of the terrain underlying them. With the cooperation of the United States National Science Foundation Institute teams have completed radio echo sounding traverses over 50% of Antarctica, and synthesis of

the data in the form of an atlas is in progress. Research at the Scott Polar Research Institute, unlike that of the British Antarctic Survey, is by no means restricted to the Antarctic. Radio echo sounding can also be developed nearer home in Greenland and the Canadian Arctic. Arctic waters over the past ten years have provided a convenient locale for the study of the response of ice floes to ocean waves. Institute personnel have not only investigated the underside of the floating ice from submarines but, with the cooperation of such organizations as the United States National and Atmospheric Administration and the Memorial University of Newfoundland, have been able to ice pressure on the surface of the Labrador and Beaufort Seas. One obvious practical application of this study is the light it throws on the problems of guarding floating structures, such as oil rigs, against the onset of floating ice and icebergs. Nor is research restricted solely to the physical sciences. In recent years there have been a continuing series of studies made relating to the social and educational problems among native peoples of the far north as well as economic developments in Siberia and the Soviets use of their Northern Sea Route.

Polar research, as we said at the start, is by no means the monopoly of the British Antarctic Survey and the Scott Polar Research Institute. It is essentially multi-disciplinary in nature and there can be few departments within the University that at one time or another have not been involved in some aspect of polar studies. Probably the most constantly involved department is that of geology where, under the direction of Mr Brian Harland, summer field parties have visited west Spitsbergen annually since 1949 to carry out stratigraphic surveys. Other departments whose polar interests have, in recent years, involved them closely with the polar institute are Applied Mathematics and Theoretical Physics, Geodesy and Geophysics, Engineering, the Cavendish Laboratory and the Godwin Laboratory for Quaternary Research.

Enough has been said to demonstrate that there is to be found in Cambridge an unparalleled concentration of institutions and individuals with interests in the polar regions.

Indeed the facilities offered by the polar institute, the British Antarctic Survey and the University departments attract to this city a growing number of visiting scholars and research students each year. "Science is the keystone of all our efforts" wrote Captain Scott in his diary. Undoubtedly the seeds sown by his two disciples, Priestley and Debenham, to ensure the continuity of his fine ideals have born fruit a thousand fold.

H. G. R. King is Librarian of the Scott Polar Research Institute

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